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THE MEASUREMENT OF ECONOMIC STRENGTH  
IN THE ASSESSMENT OF STRATEGIC POWER

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FOREWORD

The measurement, in summary fashion, of the relative strength of nations in comparable terms is frequently discussed and has occasionally been attempted. The use of economic indicators such as gross national product, production of strategic sectors, and population in estimates of capabilities and indexes of relative strength indicates a widespread interest in the concept and measurement of strategic power.

Before considering the measurement of economic strength, it is necessary to define "strategic power." Its characteristics, its measurable and nonmeasurable elements, and its economic and extra-economic content must be placed in proper perspective. The measurable economic aspects having been isolated, the role of economic resources and methods for measuring economic magnitudes can be determined. Breaking the problem into its components shows clearly that it is not desirable to attempt generalizations about strategic power directly from data on economic variables. Rather such economic data are only a part of all measurable elements and do not exhaust all the economic considerations. All the measurable elements in turn are only a part of a highly restrictive and specific conflict situation. This situation is only a part of an array of such situations embraced in the term "strategic power."

The report is in three parts. The first part is the Summary and Conclusions. The second part (Section 1) deals with the concept of the relative strength of nations, its characteristics and components. The third part (Section 2) deals with the measurement of strength. A particular power problem is specified, as is always necessary when measurement is attempted, and the role of economic variables in the specified problem is examined, both from the point of view of summary data and an exhaustive study of the problem.

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THE MEASUREMENT OF ECONOMIC STRENGTH  
IN THE ASSESSMENT OF STRATEGIC POWER

Summary and Conclusions

Strategic power as an abstract concept refers in a nonspecific way to time, space, and purpose, which must be specified in the statement of a given problem. Power represents an array of particular capabilities to do something, somewhere, at some time, rather than to do anything, anywhere, at any time. The statement of a given problem of strategic power must contain the (1) time horizon, (2) spatial characteristics, and (3) the objective of the application.

The evaluation of a given problem of strategic power is in four stages. Specification of time, area, and objective constitutes the first step. The second stage consists in specifying the economic and other measurable variables pertinent to the particular problem. In the third stage the data for the measurable elements are determined and analyzed within the framework of the given problem. The fourth stage is an imputation process wherein the gap between the quantitative evidence of the measurable aspects and the total assessment of the power problem is closed by knowledgeable judgments -- based upon historical, sociological, economic, technical, and military considerations -- about the unmeasurable aspects of the problem.

Summary economic statistics will provide a substantive contribution to the evaluation of power only (1) within the range of relevance of the specific measures, (2) when accompanied by the documentary and methodological statements necessary for a comprehension of the measures, and (3) after full specifications as to time, place, and situation. The quantitative evidence elicited from summary economic data is, moreover, only a part of the total evaluation of a power problem.

Within a specified framework, it is possible to make limited use of some summary economic data in examining a power problem. Gross national product and its components, in time series, are frequently helpful. Production, consumption, and stocks of strategic items are sometimes revealing, as are labor force and other components of population. The quantitative results of a study of summary economic data must always be interpreted within the framework of the problem and against the background of the nonmeasurable and extra-economic aspects of the problem.

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1. Concept of Strategic Power.

The concept of strategic power is three-dimensional. Time, place, and objective are the skeletal framework which provide the power concept with characteristics which can be measured and analyzed. To eliminate any one of the three from explicit consideration is to leave the concept open-ended and to subject its measurement to the impossible condition of attempting to cover either all possible time periods, all possible places, or all possible objectives.

Since the use of indicators of strategic power is primarily to predict the future course of events, the time horizon stretches from the immediate future to all future time. Since the economy is a dynamic system of interrelationships, measurements of its characteristics change rapidly over time, reflecting changes in resources, behavior, and technology. The spatial characteristics can be identified in terms of nations, coalition, regions, spatial coordinates, and/or specific areas. The location of activity and of neutrality or non-participation is equally important. The point at which the objectives of power are applied is a relevant aspect of the place context of power. The objective of strategic power may be stated in terms of the accomplishment of specific goals such as a specified mobilization and war, the redirection of specific goals such as a specified mobilization and war, or the redirection of economic activity by the use of economic warfare. The objective of strategic power may also be stated as the attainment of a position, as in the conduct of the cold war, or the attainment of a balance of resource expenditure on military activities, accretions, capital and consumption, such that the strategic power of a nation or region may perpetuate its external influence undiminished and unimpaired.

It should be noted that the strategic power position of a nation is inextricably interrelated with the internal power position of its government. The former, the manifestation of a nation's influence over other nations, must be simultaneously a product of and an influence on the latter, which represents the influence which a government wields over its domestic social, political, and economic forces. Thus strategic power influences and is influenced by a government's capability to achieve internal objectives, such as specified economic plans, an improved scale of living, and effective measures of social control.

It is a fact that the commonly accepted usage of the term "strategic power" is in the context of the ability of a nation or coalition to engage in warfare. Frequently, if nothing is specified to the con-

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trary, the problem of strategic power is the type of global warfare outlined below. It is, of course, legitimate to narrow the meaning of strategic power to this problem, but it should be done explicitly, with due attention to the detailed assumptions currently made with reference to this problem, and it should be kept in mind that the economic measurements undertaken for this purpose are not necessarily applicable to other power problems.

2. Measurement of Relative Strength.

a. General.

In any given case in which it is desired that quantitative information be brought to bear as a part of the interpretation of the problem, some economic data can be used. Economic data appropriate to the specified conditions must be selected with extreme care. There exists a vast array of economic variables, from production, costs, and uses of a single product to gross national product and its components. In between there is a myriad of sectors and intermediate aggregates. The data must be chosen so as to fit exactly the specific conditions in the power problem under examination.

No single economic summary statistic or combination of statistics is adequate to express strategic power. The gap between what conclusions can be properly derived from economic or other data and a full assessment of strategic power, which includes many nonmeasurable economic and extra-economic considerations, must be filled in by knowledgeable judgments formed against a background of history and a wide knowledge of psychological, sociological, economic, and military conditions. Moving from a part of the measurable elements in power to a total assessment is the imputation process. This imputation process may well be the most important aspect of a study of strategic power, since elements susceptible to measurement are always too partial to permit conclusions to be based directly upon the quantitative evidence.

A distinction must be drawn between the presentation of data as reference material and the use of data as the basis for generalization concerning strategic power problems. Compilation of properly documented statistics to be used for reference purposes is a legitimate activity. To use such data, however, to make generalizations about a strategic power problem is to risk misunderstanding based upon failure to specify the conditions completely, to select the variables properly, and to interpret the results adequately.

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b. Outline of a Specific Strategic Power Problem.

One of the central power problems of the intelligence community is to measure the power of a nation or coalition of nations to wage war. The economic aspects of such problems can be approached in two ways. First, a major study considering all aspects of the economy in product and industry detail can provide an estimate of relative power positions. Second, certain summary economic statistics will also yield a partial answer to the problem.

In either procedure it is first necessary to outline the time, place, and objectives. Let it be assumed that the power problem is a war beginning in mid-1957 which will continue until the objectives of the principal contestants have been resolved. The war will be initiated by the USSR with the direct support of the European Satellites and Communist China and prosecuted against the other nations of the Eurasian land mass. The objective of the Soviet Bloc will be to conquer and occupy the Eurasian land mass and to neutralize and isolate this land mass and its immediately adjacent borderland from the rest of the world. The objective of the opponents of the Bloc (the US, the British Commonwealth, and Western Europe) would be to resist the Bloc efforts, to conquer and occupy the Bloc, and to neutralize the Bloc's warmaking capability. Those areas of the world not already mentioned are neutral but may provide resources and bases to either side. Weapons of mass destruction are to be used by both sides against all participating areas.

The structure of the assumptions which give meaning to a study of strategic power is outlined above only in its briefest possible form. In any actual study, even of a much less comprehensive problem, each of the assumptions would necessarily be given in much greater detail.

c. Detailed Analysis of Economic Capabilities for War.

A full economic analysis of strategic power under the postulated conditions would begin with a complete description of the opposing economies. Included in this description would be a characterization of the relationships among an extended list of industries and products, from the point of view of both supplies of current inputs and supplies of capital inputs. The total costs of a given industry would be divided up and identified as production originating from each of the other industries. The effect upon technological relationships

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of producing at different levels of output as well as the effect of substitution in the production process would be analyzed as fully as possible.

The current status of the economy -- in terms of magnitude of the supply pipeline; size of inventory and stockpiles; and the amount of capital stock in place, industry by industry -- would also be examined. The economic structure of the military establishment, in particular, is of great significance. The amounts and kinds of military equipment and supplies in storage and in hands of troops, the logistical support mechanisms, and the armaments manufacturing facilities must be determined in full detail.

The detailed description of the economies of the opposing sides, buttressed with such aggregative measures of production, stocks, and disposition of resources as can be legitimately derived from the basic data, provides the analytical framework for determining the impact of mobilization and war upon the respective economies. The demands of mobilization and active combat can be derived from the assumptions as to the strategy and conduct of the war and from historical combat experience, as well as from the basic data on the economies and initial position of each economy. Data on the structure of industry will assist in providing an estimate of the consequences of interdiction of trade, air damage to production facilities, and disruption of transport networks. Conquest and reconquest of territory may be analyzed by adding resources to and subtracting resources from the opposing sides, with appropriate time lag. Distortion of industrial structure through enforced use of substitutes and reduced (or enlarged) scale of production can be analyzed by inserting the appropriate data.

Regarding the economies as gigantic, dynamic, interdependent organisms makes possible determinate quantitative analysis of the postulated conditions for each time period from the beginning of the war. The qualifying aspects of both the initial position of the economies and structural distortion during warfare can be taken into account simultaneously with the impact of the war on the economies.

Such a study would not necessarily point to a resolution of the struggle, limited as it is to consideration only of economic and industrial support. It would, however, provide detailed intelligence of the highest order on the strengths and weaknesses of each side. The procedure would in turn supply part of the basis for exploitation

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of enemy weakness, repairing allied weakness, nullifying the enemy's strength, and taking full advantage of all allied strength. Even such an extensive economic study would provide at best only a partial analysis of the strategic power position of the contestants. Extra-economic considerations, which may well outweigh the economic considerations, are omitted. Even certain economic factors must be omitted from the analysis because of the very complexity of the economic system alone.

d. Summary Analysis of Economic Capabilities for War.

The fact that detailed economic analysis can provide only a partial assessment of a specific strategic power problem need not preclude the use of some summary economic measures as indicators for the same power problem. The measures of relative economic strength in the postulated situation would be essentially short-run measures. The principal measures of economic strength implicit in the relative power measures would be relatively few. Three economic measures would be fundamental to this analysis. They are (1) gross national product and its components, (2) capital stock and its distribution, and (3) inventories and stockpiles of all resources.

First, gross national product (the sum of value added for all industries, or the sum of value of output minus cost of materials for all industries through a year's time) provides an excellent indicator of economic strength, inasmuch as it measures the total productive capacity of the nation in a series of specified circumstances. Even gross national product must be analyzed carefully to eliminate the influence of (1) abnormal levels of employment and (2) the absence of a market or money mechanism over a large sector of the economy. The latter condition frequently holds true of undeveloped economies. The presence of either of the above conditions may produce the possibility of immediate reflections upon the relative economic strength of particular nations or regions. An examination of the components (such as consumption, military, and investment industries of origin) of gross national product, especially in a time series for each contestant, is a valuable indication of the direction in which the economy has shifted emphasis historically and may be a clue indicating the maximum proportion of an economy which can be devoted to its warmaking effort.

Second, the produced wealth of capital facilities would provide an indication of the immediate (but a better indicator of the intermediate) capability to prosecute the war on the part of the respective

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contestants. The capability of a nation to produce, process, and fabricate economic resources and goods depends not only on the supply of current inputs but also on the existence of machines, equipment, industrial housing and roof cover, and specialized facilities. Data on capital stock and accretions to stock are an essential ingredient of the assessment of strategic power. In addition to each of the first two measures, ancillary measures of the portions of gross national product and national wealth which could be transferred to support the war activity directly would be of equal (if not greater) significance.

Third, the available inventory and/or stockpile of commodities would be of critical importance in assessing the economic strength of the contestants. The stockpile indicates the degree to which current production can be supplemented directly during the war period.

The expected duration of the war would condition the relative weights to attach to each of these measures. A war of 6 months' duration would be won or lost before the impact of the first measure would be appreciable and before the second would be operative.

Other data, in some instances, may be used in connection with those outlined above. Such additional data, however, have severe limitations, especially when used in conjunction with aggregative estimates such as gross national product. The production and consumption of selected items, such as steel, energy, or transportation are significant when the context is the structure of the economy. Production of these items is not, however, additive to gross national product, since the latter already includes a measure of their contribution (as well as that of all other industries) to the total capabilities of the economy. Indexes of components of the economy also are instructive as to the structure and growth of economies but are inferior to gross national product indexes as measures of over-all growth.

Total population is seldom useful in assessing a particular strategic power situation. There are few, if any, elements of strategic power which are a function of total population. Frequently, components of population are helpful. Manpower of military age, forces in being, and the breakdown of military manpower by skill can be used. Labor force estimates, especially when broken down by skill and occupational specialty, can be of considerable value. It must be emphasized, however, that population or population components are in no way additive to aggregative measures such as gross national product or sector outputs.

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e. Noneconomic Considerations.

The economic strength of the participating nations and their neutral sources of supply would constitute only a partial measure of the power complex at the command of each of the participants. The size and composition of the military forces would be of greater or lesser importance, depending upon the expected duration of the war, but these forces would be of crucial importance regardless of duration. The immediate availability of adequately equipped military forces might conceivably be the sole determinant of strategic power in a power situation of a short time dimension. Domestic political and social conditions also would be central to any analysis of the power position of the contestants. Even the overt act by which the war is initiated might rearrange the power position of the contestants.

Any single measure or series of measures contrived to appraise the relative power of the participants or any facet of that power would be necessarily a partial measure. The scope of the measure is a function of the number of variables which have been analyzed in the construction of the measure. Any measure of the magnitude of the power potential should contain an explicit statement of the principal variables analyzed and of the probability that the measure incorporating the variables presents an accurate appraisal of the variables.

f. Summary.

A full and adequate economic analysis of a strategic power problem falls short of a total assessment of strategic power in the same way that the indicator approach falls short. Extra-economic considerations are omitted. The difference between full analysis and indicators is one of degree. Even assuming, however, that extra-economic factors, such as military forces in being, psychological and sociological factors, and the talents of individual men, could be quantified, there is a residual, not subject to measurement, which makes the analysis of a strategic power problem not only a difficult task but also essentially a matter of individual or collective judgment.

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